**UW Health Breast Center Pathology Guidelines**

**(Surgery, Imaging and Pathology)**

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**Note/Disclaimer: Each patient scenario is unique and these Guidelines are designed to help streamline care for the patients seen by UW Health providers but individual physician and patient decision making may result in a variance from these guidelines.**

**Core Needle Biopsy Pathology**

**Guidelines are for core needle biopsy results that are assessed as radiology-pathology concordant by the radiologist. All discordant cases will be recommended for additional tissue sampling.**

**ADH (Atypical Ductal Hyperplasia):**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| * Biopsy result of ADH | * Referral to breast surgeon * Recommend surgical excision for all cases * Consider clinical trials if available | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |

Note: Upgrade rates vary from 7-87% depending on the study with larger studies showing upgrade to DCIS or invasive cancer in the 20-30% range

Pertinent References

Krishnamurth S, Bever T, Kuerer H, et al. Multidisciplinary considerations in the management of high-risk breast lesions. AJR Am J Roentgenol. 2012 Feb;198(2):W132-40.

Menes TS, Rosenberg R, Balch S, et al. Upgrade of high-risk breast lesions detected on mammography in the Breast Cancer Surveillance Consortium. Am J Surgery 2014; 207; 24-31.

Zhou WB, Xue DQ, Liu XA, et al. [The influence of family history and histological stratification on breast cancer risk in women with benign breast disease: a meta-analysis.](http://www.ncbi.nlm.nih.gov/pubmed/21499874) J Cancer Res Clin Oncol. 2011 Jul;137(7):1053-60.

**FEA (Flat Epithelial Atypia) :**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| * Biopsy result of FEA | * Referral to breast surgeon * Consider surgical excision based on shared decision making discussion of upgrade potential and patient preferences * Consider clinical trials if available | * Consider surgical excision   If not excised   * Diagnostic imaging follow-up at 12 months, then routine screening if stable. * Note: AND breast MRI in 6 months, if MRI detected finding. * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |

Pertinent References

1. Said SM, Visscher DW, Nassar A, Frank RD, Vierkant RA, Frost MH, Ghosh K, Radisky DC, Hartmann LC, Degnim AC. [Flat epithelial atypia and risk of breast cancer: A Mayo cohort study.](http://www.ncbi.nlm.nih.gov/pubmed/25639678) Cancer. 2015 Jan 13. (FEA does not confer long term increased risk of breast cancer above risks associated with proliferative breast disease or ADH if ADH is seen with FEA)
2. [Prowler VL](http://www.ncbi.nlm.nih.gov/pubmed/?term=Prowler%20VL%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)1, [Joh JE](http://www.ncbi.nlm.nih.gov/pubmed/?term=Joh%20JE%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)2, [Acs G](http://www.ncbi.nlm.nih.gov/pubmed/?term=Acs%20G%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)3, [Kiluk JV](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kiluk%20JV%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)4, [Laronga C](http://www.ncbi.nlm.nih.gov/pubmed/?term=Laronga%20C%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)4, [Khakpour N](http://www.ncbi.nlm.nih.gov/pubmed/?term=Khakpour%20N%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)4, [Lee MC](http://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20MC%5BAuthor%5D&cauthor=true&cauthor_uid=24518220)5Surgical excision of pure flat epithelial atypia identified on core needle breast biopsy. [Breast.](http://www.ncbi.nlm.nih.gov/pubmed/24518220) 2014 Aug;23(4):352-6. (3.2% upgrade rate for pure FEA)
3. Peres A, Barranger E, Becette V, Boudinet A, Guinebretiere JM, Cherel P. [Rates of upgrade to malignancy for 271 cases of flat epithelial atypia (FEA) diagnosed by breast core biopsy.](http://www.ncbi.nlm.nih.gov/pubmed/22042365) Breast Cancer Res Treat. 2012 Jun;133(2):659-66.(15% upgrade rate but includes cases where ALH, ADH and LCIS are present)

**ALH (Atypical Lobular Hyperplasia) and LCIS (Lobular Carcinoma In Situ):**

| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| --- | --- | --- |
| * Biopsy result of ALH or LCIS | * Referral to breast surgeon in all cases | * Consider surgical excision   If not excised   * Diagnostic imaging follow-up at 12 months, then routine screening if stable * Note: AND breast MRI in 6 months, if MRI detected finding. * If stable, site assessed on imaging as BI-RADS 2 |
| **Surgeon-identified patient characteristics**   * Abnormality found on screening * Low Gail or IBIS risk before LCIS or ALH | * In a shared decision making discussion, surgeon emphasizes low yield for surgical excision if the ALH or LCIS is found at screening and imaging and pathology are concordant * Patient may choose to have surgical excision * Consider referral to the PATHS clinic | * Consider surgical excision   If not excised   * Diagnostic imaging follow-up at 12 months, then routine screening if stable * Note: AND breast MRI in 6 months, if MRI detected finding. * If stable, site assessed on imaging as BI-RADS 2 |
| **Surgeon-identified patient characteristics**   * High Gail or IBIS risk before LCIS or ALH (over 20% lifetime risk) | * Surgeon can recommend a breast MRI * Surgeon discusses risk with patient and makes surgical determination in a shared decision making model * Consider referral to PATHS clinic | * Consider surgical excision   If not excised   * Diagnostic imaging follow-up at 12 months, then routine screening if stable * Note: AND breast MRI in 6 months, if MRI detected finding. * If stable, site assessed on imaging as BI-RADS 2 |
| * Biopsy result of LCIS non-classical variant: i.e., pleomorphic, with necrosis, signet ring, or apocrine | * Referral to breast surgeon * Surgeon recommends a surgical excision * Consider referral to the PATHS high risk program | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |

Pertinent References

Hussain M, Cunnick GH. [Management of lobular carcinoma in-situ and atypical lobular hyperplasia of the breast--a review.](http://www.ncbi.nlm.nih.gov/pubmed/21306860) Eur J Surg Oncol. 2011 Apr;37(4):279-89. This is a systematic review and showed a 27% upgrade rate for LCIS and ALH

Nagi CS, O’Donnell JE, Tismenetsky M et al. Lobular neoplasia on core needle biopsy does not require excision. Cancer 2008; 112: 2152-8.

Menes TS, Rosenberg R, Balch S, et al. Upgrade of high-risk breast lesions detected on mammography in the Breast Cancer Surveillance Consortium. Am J Surgery 2014; 207; 24-31.

Krishnamurth S, Bever T, Kuerer H, et al. Multidisciplinary considerations in the management of high-risk breast lesions. AJR Am J Roentgenol. 2012 Feb;198(2):W132-40.

**Papilloma:**

| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| --- | --- | --- |
| NO clinical symptom or atypia:   * No ipsilateral nipple discharge * Lesion is not a palpable mass * No atypia in or adjacent to the papilloma | * No referral to breast surgeon * Excision not recommended | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |
| NO clinical symptom or atypia:   * No ipsilateral nipple discharge * Lesion is not a palpable mass * No atypia in or adjacent to the papilloma   AND patient has personal history of breast cancer, 1st degree relative with breast cancer | * Contacting nurse identifies patient risk factors, facilitates referral to breast surgeon * Consider surgical excision if requested by patient following a shared decision making discussion | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |
| Clinical symptom or atypia   * Nipple Discharge (on the side of the papilloma) * Lesion is a palpable mass * ATYPIA in or adjacent to the papilloma, | * Surgical referral * Excision is recommended * Surgeon discusses risks and benefits of surgical excision. Strong recommendation for surgical excision in these cases | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2. BI-RADS 2 acceptable sooner if stable and excision recommended for clinical symptoms that have resolved |

Potential Smart Phrase: Patients with benign and radiology-pathology concordant papillomas at core needle biopsy without associated symptoms of a mass or nipple discharge have a very low risk of upgrade to in-situ or invasive cancer at excision. For patients with atypia in or adjacent to the papilloma there is an upgrade rate of up to 30% at surgical excision.

Pertinent References

Swapp, B, Jones K, Brandts H, et al. Management of Benign Intraductal Solitary Papilloma Diagnosed on Core Needle Biopsy. Annals of Surgical Oncology; 2013; 20: 1900-1905

Richter, Ehrenstein C. et al. Intraductal Papillomas of the breast: diagnosis and management of 151 patients. Breast, 2011; 20(6):501-504

Wen X, Cheng W. [Nonmalignant **breast** papillary lesions at core-needle biopsy: a meta-analysis of underestimation and influencing factors.](http://www.ncbi.nlm.nih.gov/pubmed/22878621) Ann Surg Oncol. 2013 Jan;20(1):94-101.

Menes TS, Rosenberg R, Balch S, et al. Upgrade of high-risk breast lesions detected on mammography in the Breast Cancer Surveillance Consortium. Am J Surgery 2014; 207; 24-31.

**Radial Scar (Complex Sclerosing Lesion):**

| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| --- | --- | --- |
| * No atypia, AND * Assessed by radiologist as completely removed or at radiology-pathology concordance as incidental relative to imaging finding | * No referral to breast surgeon | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |
| * No atypia, AND * Assessed by radiologist as completely removed or at radiology-pathology concordance as incidental relative to imaging finding, AND * Patient has personal history of breast cancer, 1st degree relative with breast cancer | * Contacting nurse identifies patient risk factors, facilitates referral to breast surgeon * Consider surgical excision if requested by patient following a shared decision making discussion regarding potential upgrade to high risk lesion vs malignancy | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |
| * No atypia, AND * Assessed by radiologist as NOT completely removed | * Surgical referral * Shared decision making discussion regarding potential upgrade to high risk lesion vs malignancy (estimated less than 10%) | * Consider surgical excision   If not excised   * Diagnostic imaging follow-up at 12 months, then routine screening if stable * Note: AND breast MRI in 6 months, if MRI detected finding. * If stable, site assessed on imaging as BI-RADS 2 |
| * ATYPIA in or adjacent to the radial scar | * Surgical referral * Excision is recommended * Surgeon discusses risks and benefits of surgical excision. Strong recommendation for surgical excision in these cases | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |

Potential Smart Phrase:

The patient was advised that radial scar is an idiopathic process of adenosis and fibroelastic changes that are not related to trauma or surgery. Radial scar is a pathologic description that has a potential upgrade rate to malignancy of 0-12% if no atypia is seen on pathologic review. With larger core biopsy (8 and 11) and no atypia the rate of upgrade is less than 5%.

Pertinent References

Krishnamurth S, Bever T, Kuerer H, et al. Multidisciplinary considerations in the management of high-risk breast lesions. AJR Am J Roentgenol. 2012 Feb;198(2):W132-40.

Bunting DM, Steel JR, Holgate CS, et al. Long term follow-up and risk of breast cancer after a radial scar or complex sclerosing lesion has been identified in a benign open breast biopsy. Eur J Surg Oncol. 2011 Aug;37(8):709-13.

**Phyllodes Tumor:**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| Possible phyllodes or benign phyllodes | * Referral to breast surgeon * Recommend surgical excision for all cases | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |
| Borderline phyllodes | * Referral to breast surgeon * Recommend surgical excision for all cases   (Goal Margin >1 cm) | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |
| Malignant phyllodes | * Referral to breast surgeon * Recommend surgical excision for all cases   (Goal Margin > 1 cm)  Referral to Radiation Oncology post-operatively | * Recommend surgical excision   If not excised   * Recommend diagnostic imaging at 6, 12, and 24 months * If stable, site assessed on imaging as BI-RADS 4 until 24 months, then BI-RADS 2 |

Pertinent References

1: Ben hassouna J, Damak T, Gamoudi A, et al. *Phyllodes tumors of the breast: a case series of 106 patients.* **The American Journal of Surgery**, 2006. 192: 141-147.

2: Chen WH, Cheng SP, Tzen CY et al. *Surgical Treatment of Phyllodes Tumors of the Breast: Retrospective Review of 172 Cases*. **Journal of Surgical Oncology**. 2005; 91: 185-194.

3: Guilllot E, Couturaud B, Reyal F, et al. *Management of Phyllodes Breast Tumors*. **The Breast Journal**. 2011: 17: 129-137.

4: Barth RJ Jr. *Histologic features predict local recurrence after breast conserving therapy of phyllodes tumors*. **Breast Cancer Res Treat** 1999; 57: 291-295.

5: Mangi AA, Smith BL, Gadd MA, et al. *Surgical Management of Phyllodes Tumors*. **Arch Surg** 1999: 134, 487-493.

6: Kim S, Kim JY, Kim DH, et al. *Analysis of phyllodes tumor recurrence according to the histologic grade*. **Breast Cancer Res Treat**, 2013. 141: 353-363.

7: Barth RJ, Wells WA, Mitchell SE, et al. *A prospective, multi-institutional study of adjuvant radiotherapy after resection of malignant phyllodes tumors*. **Ann Surg Oncol** 2009: 19, 2288-94.

**Fibroadenoma (Definitive by CNB Pathology):**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| * Lesion size < 5 cm | No surgical referral. Clinical follow-up as indicated. | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |
| * Lesion size >= 5 cm | Surgical referral.  Shared decision making discussion with the patient regarding removal. | * Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography. * Clinical follow-up should be based on clinical factors. |

Pertinent References

Leconte Diagnostic & Interventional Imaging (2012) 93: 750-56

Wai CJ, Mubarak G, Homer MJ, et al. [modified triple test for palpable breast masses: the value of ultrasound and core needle biopsy.](http://www.ncbi.nlm.nih.gov/pubmed/23104707) Ann Surg Oncol. 2013 Mar;20(3):850-5

Reeves, MJ, Osuch JR, Pathak DR. Development of a clinical decision rule for triage of women with palpable breast masses. .J Clin Epidemiol. 2003 Jul;56(7):636-45.

Harvey JA, Mahoney MC, Newell MS, et al. [ACR appropriateness criteria palpable breast masses.](http://www.ncbi.nlm.nih.gov/pubmed/24091044)

J Am Coll Radiol. 2013 Oct;10(10):742-9.

**PASH:**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| * PASH not a site of clinical symptom (not palpable) | * No referral to breast surgeon | Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography.  Clinical follow-up should be based on clinical factors. |
| * PASH is a site of clinical symptom (palpable mass) | * Consider surgical excision if requested by patient following a shared decision making discussion | Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography.  Clinical follow-up should be based on clinical factors. |

Potential Smart Phrase:

Discussed was the diagnosis of PASH and the associated clinical findings. PASH is a benign condition of the breast with no known malignant potential. If the breast with PASH has concerning mammographic findings including suspicious calcifications or a suspicious mass, then this is discordant with imaging and excision is recommended. If the PASH lesion is associated with a palpable mass and confirmed by core biopsy, the mass can be excised if the patient desires removal.

Pertinent References

Gresik CM, Godellas C, Aranha GV, et al. Pseudoangiomatous stromal hyperplasia of the breast: a contemporary approach to its clinical and radiologic features and ideal management. Surgery. 2010 Oct;148(4):752-7

Bowman E, Oprea G,Okoli J, et al. Pseudoangiomatous stromal hyperplasia (PASH) of the breast: a series of 24 patients. Breast J. 2012 May-Jun;18(3):242-7.

Hargaden GC, Yeh ED, Georgian-Smith D, et al. Clinical Observations. Analysis of the Mammographic and Sonographic Features of Pseudoangiomatous Stromal Hyperplasia American Journal of Roentgenology. 2008;191:359-363.

**Surgical Pathology**

**Lumpectomy Margins:**

|  |  |
| --- | --- |
| **Patient characteristics/findings** | **Clinical Management** |
| * DCIS | * Less than 2 mm requires re-excision * If anterior margin cleared skin and posterior margin cleared pectoralis, do not re-excise |
| * Invasive | * Margins that are ink negative do not require re-excision * Margins that are positive require re-excision * If anterior margin cleared skin and posterior margin cleared pectoralis, do not re-excise |
| * DCIS & Invasive | * Evidence based guideline recommends margin guidelines of no tumor on ink * UW Health Breast Center recommends individual case assessment to determine need for re-excision |

Notes:

* Margins identified with ink or with stitches and clips, either are acceptable
* Long stitch lateral, short stitch superior, 2 clips medial, 1 clip inferior
* All margins must be marked by ink or stitches/clips on 4 sides
* UWHC pathology prefers ink; Meriter pathology prefers no ink
* If using ink, need training from pathology and possible purchase of kits

Pertinent References

Houssami N, Macaskill P, Marinovich L, et al. [The Association of Surgical Margins and Local Recurrence in Women with Early-Stage Invasive Breast Cancer Treated with Breast-Conserving Therapy: A Meta-Analysis.](http://www.ncbi.nlm.nih.gov/pubmed/24473640) Ann Surg Oncol. 2014 Jan 29. [Epub ahead of print]

**Clinical Scenario**

**Unsampled benign-appearing solid mass (suspected fibroadenoma) meeting clinical and imaging criteria for BI-RADS 3 – probably benign.**

|  |  |  |
| --- | --- | --- |
| **Patient characteristics/findings** | **Clinical Management** | **Imaging Recommendation and Follow-up** |
| * Patient age < 40   AND   * Lesion size < 5 cm | No surgical referral. Clinical follow-up as indicated. | BI-RADS Assessment 3. Diagnostic imaging follow-up at 6, 12 and 24 months. Clinical and/or surgical follow-up based on clinical factors. |
| * Patient age >= 40   OR   * Lesion size >= 5 cm | Surgical referral.  Shared decision making discussion with the patient regarding removal. | BI-RADS Assessment 3. Diagnostic imaging follow-up at 6, 12 and 24 months. Clinical and/or surgical follow-up based on clinical factors. |

Pertinent References

Leconte Diagnostic & Interventional Imaging (2012) 93: 750-56

Wai CJ, Mubarak G, Homer MJ, et al. [modified triple test for palpable breast masses: the value of ultrasound and core needle biopsy.](http://www.ncbi.nlm.nih.gov/pubmed/23104707) Ann Surg Oncol. 2013 Mar;20(3):850-5

Reeves, MJ, Osuch JR, Pathak DR. Development of a clinical decision rule for triage of women with palpable breast masses. .J Clin Epidemiol. 2003 Jul;56(7):636-45.

Harvey JA, Mahoney MC, Newell MS, et al. [ACR appropriateness criteria palpable breast masses.](http://www.ncbi.nlm.nih.gov/pubmed/24091044)

J Am Coll Radiol. 2013 Oct;10(10):742-9.

**Nipple Discharge:**

|  |  |
| --- | --- |
| **Patient characteristics/findings** | **Clinical Management** |
| * Physiologic discharge: bilateral, milky and /or green multiductal | * Routine screening * Reassurance * Patient to be worked up for systemic causes (i.e. endocrine) if appropriate clinically by PCP prior to referral to surgeon |
| * Spontaneous pathologic discharge (bloody, serous or clear discharge , single duct /unilateral) – reproducible in clinic * Non lactating patient | * Age-appropriate diagnostic imaging, including subareolar ultrasound * Standard evaluation (biopsy) of imaging abnormalities * Surgical referral and ductal excision is recommended (unless image guided biopsy identified the abnormality – then follow guidelines for pathology results obtained) * Galactogram/Ductography is not recommended based on low yield of outcome/results |
| * Single episode or nonreproducable pathologic discharge (bloody, serous or clear discharge , single duct /unilateral) | * Patient to be worked up by PCP prior to referral to surgeon * Age-appropriate diagnostic imaging, including subareolar ultrasound * Standard evaluation (biopsy) of imaging abnormalities * Surgical referral * Clinical follow-up 3 month exam (exam , return for change i.e.spontaneous) * 6 month diagnostic imaging follow-up |

Pertinent References

[Gray RJ, Pockaj BA, Karstaedt PJ. Navigating murky waters: a modern treatment algorithm for nipple discharge. Am J Surg 2007; 194:850.](http://www.uptodate.com/contents/nipple-discharge/abstract/30)

[Chen L, Zhou WB, Zhao Y, et al. Bloody nipple discharge is a predictor of breast cancer risk: a meta-analysis. Breast Cancer Res Treat 2012; 132:9.](http://www.uptodate.com/contents/nipple-discharge/abstract/25)

[Alcock C, Layer GT. Predicting occult malignancy in nipple discharge. ANZ J Surg 2010; 80:646.](http://www.uptodate.com/contents/nipple-discharge/abstract/46)

[Morrogh M, Morris EA, Liberman L, et al. The predictive value of ductography and magnetic resonance imaging in the management of nipple discharge. Ann Surg Oncol 2007; 14:3369.](http://www.uptodate.com/contents/nipple-discharge/abstract/36)

Morrogh M, Park A, Elkin EB, King TA Lessons learned from 416 cases of nipple discharge of the breast. Am J Surg 2009; 200:73

Appendix 1: Recommendations by Breast Imaging (Biopsy Report) after Concordant Core Needle Biopsy:

|  |  |  |
| --- | --- | --- |
| **Recommend** surgical excision | Atypical ductal hyperplasia (ADH)  Lobular carcinoma in situ (LCIS) non-classical variant (i.e., pleomorphic, with necrosis, signet ring, or apocrine)  Papilloma with atypia  Papilloma palpable or associated with nipple discharge  Radial scar with atypia  Possible phyllodes or phyllodes tumor | *“The pathology results have atypia or potential risk of upgrade (, see full pathology report for details) and are radiology/pathology concordant. Per UW Health Breast Center guidelines for this scenario/pathology, RECOMMEND SURGICAL EXCISIONAL BIOPSY (referral to the breast surgeon).*  *If surgical excision is not performed, recommend post-biopsy follow-up with diagnostic imaging in 6, 12 and 24 MONTHS.”*  Radiologist guidance for BI-RADS assessment if not excised: if stable on imaging follow-up, site assessed as BI-RADS 4 until 24 months, then BI-RADS 2. |
| **Consider** surgical excision | Flat epithelial atypia (FEA)  Atypical lobular hyperplasia (ALH)  Lobular carcinoma in situ (LCIS) classical variant  Radial scar with no atypia, assessed by radiologist as not completely removed | *“The pathology results have atypia or potential risk of upgrade (, see full pathology report for details) and are radiology/pathology concordant. Per UW Health Breast Center guidelines for this scenario/pathology, recommend referral to the breast surgeon for CONSIDERATION of excisional biopsy.*  *If surgical excision is not performed, recommend post-biopsy follow-up with diagnostic imaging in 12 MONTHS.”*  Note: AND breast MRI in 6 months, if MRI detected finding, see wording below.  Radiologist guidance for BI-RADS assessment if not excised: if stable on imaging follow-up, site assessed as BI-RADS 2. |
| **Routine post-biopsy imaging**, clinical follow-up based on clinical factors  (**6-month imaging follow-up** if:   1. Finding detected on MRI 2. Extenuating clinical, radiology or pathology considerations) | Papilloma with no atypia, no palpable mass, no associated with nipple discharge  Radial scar with no atypia, assessed at Rad-Path as completely removed or incidental  Fibroadenoma  Pseudoangiomatous stromal hyperplasia (PASH) | “*Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography.*  *Clinical follow-up should be based on clinical factors.”*  *(“Recommend post-biopsy imaging follow-up with (mammogram/ultrasound/MRI) in 6 MONTHS.*  *Clinical follow-up should be based on clinical factors.”)* |
| **Routine post-biopsy imaging**, clinical follow-up based on clinical factors  (**6-month imaging follow-up** if:   1. Finding detected on MRI 2. Extenuating clinical, radiology or pathology considerations) | Other benign, concordant biopsy results | “*Recommend post-biopsy imaging follow-up with bilateral screening mammogram in 12 MONTHS if age 40 years or older or if at elevated breast cancer risk. If less than age 40 years, recommend routine age-appropriate screening mammography.*  *Clinical follow-up should be based on clinical factors.”*  *(“Recommend post-biopsy imaging follow-up with (mammogram/ultrasound/MRI) in 6 MONTHS.*  *Clinical follow-up should be based on clinical factors.”)* |